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AUTHOR Lonsdale, Helen C.
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ABSTRACT

Because 16mm film programs for classroom use are expensive and distribution is unpredictable, the Satellite Technology Demonstration (STD) established a Materials Distribution Service (MDS) to transmit material via satellite to rural sites in the Rocky Mountains. The STD leased 300 programs from Encyclopedia Britannica Educational Corporation and 100 programs from Great Plains National Instructional Television. These films were then videotaped and used by STD schools at their convenience during the 1974-75 school year. A catalog of titles was made available to classroom teachers for selection and scheduling of films. Participating schools were required to purchase a video tape recorder (VTR) and monitor in order to use the service. The MDS was rated positive regardless of minor inconvenience such as equipment malfunction, copyright restrictions, and budgeting limitation. The project demonstrated that mass distribution of materials on an individualized, personalized basis is a viable potential for satellite delivery systems. A table showing the MDS audience attendance is included. (Author/DS)

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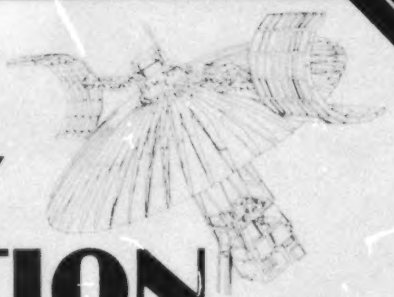

FEDERATION OF ROCKY MOUNTAIN STATES, INC.

technical report

TR0501

THE DEVELOPMENT OF A MATERIALS DISTRIBUTION SERVICE FOR A SATELLITE-BASED EDUCATIONAL TELECOMMUNICATIONS EXPERIMENT

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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HELEN C. LONSDALE

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INTRODUCTION

How do you motivate students? A theoretical question for some, motivation is a very real problem for teachers and school administrators.

Educational films are, of course, important "stimulants." But few schools can afford to acquire film libraries with 300-plus titles. Even if a library has a requested title, problems arise in distributing the film. This problem is especially acute in rural areas. Single print distribution (in which films are returned to a central library for cleaning, repair, and inspection) is slow; and a rotation system (in which each user is responsible for forwarding the film to the next user) is inefficient and costly.

Further, a school's use of films is limited by available titles, priority requests, and delivery dates. The school can order only a few titles each year; it competes with other schools for popular titles; and to replay any film at a later date, the school must make another request.

Thus, although the need for educational films is great, a school's access to these materials often is limited. To correct this problem, the Satellite Technology Demonstration (STD) established a Materials Distribution Service (MDS).

Started about half-way through the Demonstration, the MDS increased the scope and flexibility of rural school curriculums by providing excellent and timely films to support classroom instruction in all content areas. These films were recorded and used by STD schools, at their convenience, during the 1974-75 school year.

This report describes the Materials Distribution Service--how it was started, who used it, and how materials were selected and distributed. The report concludes by briefly describing the results of this service and by making recommendations for future, similar efforts.

DEVELOPING THE MDS

In mid-November, 1973, the STD signed a "Memorandum of Understanding" with its federal sponsor, the National Institute of Education. In this memo, the STD agreed to establish a

library of films and videotapes, all of which would be transmitted via satellite to the rural sites participating in the Demonstration. The objectives, as specified in the memo, were:

1. To schedule at least 120 minutes of broadcast time per week on Applications Technology Satellite-6 (ATS-6) for a Materials Distribution Service that would cover two footprints (Rocky Mountain East and Rocky Mountain West).
2. To create a library and catalogue of at least 300 titles--aimed at all grade levels and covering different content areas--with no more than 50 titles centering on career education (the subject for the STD's daily program series).
3. To encourage Intensive Terminal (IT) sites (whose two-way audio capability allowed the sites and the STD to communicate with each other via the ATS-6) to participate in the MDS.*
4. To insure that all participating IT's purchased sufficient quantities of tape and at least one videotape cassette recorder in order to use the service.

In addition, plans were made to supplement the STD's adult evening series--called "Footprints"--with the MDS.

SELECTION OF MATERIALS

To provide the sites with information on which to base requests for materials, the STD had to develop a catalogue describing the available titles. But the STD neither had the time nor personnel to undertake the extensive screening procedures that were necessary to select and develop such a catalogue. Initially, then, the NIE suggested that the Great Plains National Instructional Television (GPN) library serve as the only source for MDS titles.

The GPN, however, did not satisfy the Project's requirements for an MDS: The bulk of programming was grouped to run sequentially; for example, viewing program number one was necessary for understanding program number two. Further, the GPN refused to offer its programs in

* Twelve of the STD's Receive-Only Terminal (ROT) sites were at public television (PTV) stations. These sites could receive signals, but could not communicate back through the system. Because of copyright restrictions, the PTV sites could not participate in the MDS.

any fashion other than in unbroken groups. Thus, by using the GPN, which averaged 20 sequential programs per series, the STD would have limited the total MDS transmission to 15 series--an insufficient number to cover the range of subject areas and grade levels necessary for an effective, comprehensive service.

Consequently, a second source, Encyclopaedia Britannica Educational Corporation (EBE) was selected by participating school representatives and STD staff members. The EBE offered a diversified selection of films--covering many subject areas and reaching all grade levels. Also, the cost of EBE materials was competitive not only with GPN programs, but also within the MDS budget.

The STD recommended that EBE be used as the prime source for MDS titles. Although concurring with the STD's recommendation, the NIE still required GPN representation in the final catalogue. The Institute subsequently approved leasing 300 programs from EBE and 100 programs from GPN. This decision increased the MDS library to 400 titles, 100 above the total specified in the "Memorandum of Understanding." Additional funds for acquiring the extra programs were supplied by the NIE.

"Footprints"

The STD originally planned to use 60 MDS programs to supplement the adult evening series. Severe budget cuts, however, forced the STD to obtain these materials by using "free" films or by repeating broadcasts from the 400-title MDS library.

SPECIFYING THE PROGRAMS

Initial program selections were made from EBE and GPN catalogues by the potential users (teachers) at the 56 participating sites. Teachers (from grades K-12) reviewed the catalogues then selected the programs which they felt would be most valuable for classroom use. This preference data was used to rank programs in order of the number of requests. These rankings included approximately 360 programs from the EBE catalogue and over 100 programs from the GPN catalogue.

The teachers' selections covered a broad range of subject areas and grade levels, thus satisfying the STD's goal to present balanced programming. But the number of titles had to

be reduced to the previously determined 400. Because the STD staff had limited time and resources to refine the lists, professional education program counselors from both EBE and GPN reviewed the lists and recommended deletions. The counselors eliminated programs which were outdated, contained unsuitable content, or represented inferior technical quality. The remaining teacher-recommended programs, covering a broad range of subject areas and grade levels, became the main MDS library.

"Footprints"

However, the STD still had to select 60 programs for the "Footprints" series. This was difficult, because only two major commercial sources of free film were identified; and only a few of their films matched the subject areas of the program topics. Of those films available, most did not have the technical or production standards required by the STD. Government agencies and service organizations also provided films which the STD staff screened and evaluated. Through these processes, 28 supplemental films were identified and acquired. The remaining 32 films were selected from the 400 EBE and GPN designated programs as suitable for both student and adult audiences.

PREPARING SUPPLEMENTARY PRINT MATERIALS

To enable the classroom teacher to request desired programs from the 400 available, the STD prepared a catalogue of titles, with a table of contents and an alphabetical index for easy reference. Each program was listed by subject area; the entire listing included title, length of program, suitable grade levels, and a content synopsis. Four copies of the catalogue were sent to each participating site.

Once a teacher ordered and scheduled a film or tape, he/she received a bound volume of teacher's guides. These guides included GPN and EBE information about the titles and were used to supplement school curriculums. The guides also: (1) suggested ways that community resources could be used in school programs; (2) provided activities and discussion ideas for teachers, each of whom had a different subject area and teaching situation; and (3) served as a source of ideas for classroom activities if technical problems prevented program reception. Three volumes of guides were distributed to each participating site.

The 60 MDS programs for the evening series were listed and described in a third publication called Footprints. Four copies of this catalogue were sent to each participating site.

Supplementary print materials were mailed to the sites on August 1, 1974--about one month before transmissions began. Most teachers, however, didn't get to the schools until after August 15. They had, therefore, only a short time to examine the listings and to select films and tapes. Further, this time was reallocated mostly to pre-school workshops and startup activities. Future projects should consider distributing guides as early as spring of the current school year for transmission the following school year.

Because EBE and GPN film prints could not be released to the STD for the entire year, the library of MDS programs was transferred to videotape to allow quick response to field requests. High quality quadruplex videotape was selected as recording stock for the library, since lower cost small-format cassettes would have required additional electronic equipment at the sites to insure adequate quality.

The STD purchased 200 hours of videotape, as well as the necessary storage racks and labels for quick tape retrieval. The contract price of GPN programs included the cost of transferring their programs to STD-supplied tape stock. EBE mailed films to Denver for transfer by STD personnel: The sixty programs for "Footprints" were also transferred in-house. All transfers were completed by August 1, 1974--five weeks before the first broadcast to the sites.

SCHEDULING BROADCASTS

In March, 1974, field service personnel polled the sites to determine how many schools had purchased videotape recorders. Based on the small number of sites that had made these purchases, the STD predicted that only 25 percent of the sites would be able to tape the MDS programs.

Initially, the STD had planned to have teachers at IT sites use the ATS-3 voice channels to order titles from the library and to set up broadcast dates. By June, 1974, however, more sites had purchased videotape recorders and tape stock than had been predicted.* As a result,

* The list of sites who purchased videotape equipment grew not only because the schools became interested in the MDS (although interest was a prime factor), but also because the STD helped many schools to find funds at an inconvenient time in the budget year. Project personnel encouraged state budget and finance officers to supply state funds for videotape purchases. The entire state of New Mexico, for example, was able to purchase equipment under this arrangement.

there was insufficient satellite time to meet increased user demand for ordering MDS material. The STD request plan was, therefore, revised.

The new plan called for a printed order form to be sent to each site every six weeks. Teachers were asked to indicate their first, second, and third preferences for library titles. The forms were then tabulated by Denver staff and used to develop the MDS broadcast schedule, which was mailed to each site. When the material had been scheduled for a six-week period, personnel at the STD's Network Coordination Center (NCC) in Denver transmitted the schedule over the ATS-6. These transmissions were used not only to remind schools of broadcast dates and times, but also to inform sites of any program deletions or additions.

REMOTE CONTROL RECORDING

The STD designed and obtained equipment which enabled NCC personnel to operate unattended videotape recorders at IT sites. But technical problems with the ATS-3 prevented this remote recording system from becoming operational. As a result, on-site personnel rather than NCC personnel were responsible for starting and stopping the videotape recorders.

IN-HOUSE PROCEDURES

In-house procedures were fairly routine. When a broadcast schedule was determined, the MDS Coordinator prepared a weekly transmission log for MDS broadcasts. This log contained program titles, catalogue numbers, running times, and the sequence of program reels. NCC personnel used the log to confirm future programs or to announce broadcast changes. Each week's tapes were retrieved from the library and delivered to the videotape operators.

RESULTS

Of all the STD's programs and services, the MDS was the most positively rated. Data concerning the use and acceptance of this service is presented below.

Indicator

Information on the number and titles recorded and shown at each site and teacher ratings of the materials were derived from a weekly report prepared by STD career development specialists and/or site coordinators.

Findings

Fifty-four of the fifty-six participating schools purchased from school district funds the videotape cassette recorders necessary to use the service. During the two semesters, these sites made a total of 7,068 recordings and 4,709 showings of the titles broadcast; this was an average of 87 showings per site during the school year. The documented audience attendance was 190,078 as shown in the following table.

Attendance	First Semester	Second Semester	Total
Elementary	24,736	34,213	58,949
Junior High	43,298	31,778	75,076
High School	34,128	19,630	53,488
Adult - Other	1,729	936	2,565
Totals	103,891	86,187	190,078

TABLE 1. MDS Audience Attendance

Overall, teachers rated the content of MDS materials as "very appropriate" to the curriculum and to the grade level. In comparison to rental films, teachers said the MDS was more up to date and more readily available.

Field service interviews with participating schools indicated the following:

1. Teachers used MDS materials both as a supplement and as an alternative to rental films.
2. Staff members indicated that the catalogue descriptions were comprehensive; thus, they could use the materials without previewing them.
3. Students discussed the content of MDS materials at home.

4. Compared to the use of a movie projector, staff members preferred the quiet operation and simplicity of the video equipment which could be used in a room.

5. Several sites implemented methods of sharing MDS recordings with other schools and the community, including making viewing facilities available outside school hours and providing copies of recordings to other schools in the district.

Discussion

The limitation of equipment and videotapes at the local sites greatly affected the use of MDS titles. Most sites were able to purchase only one tape recorder (VTR), one television monitor, and a few dozen cassette tapes (tape stock). Therefore, the number of MDS showings was limited to those titles which could be scheduled using one set of equipment. Although several sites had to use their tapes repeatedly and could retain material for only a few weeks, other sites were able to purchase sufficient tape stock to retain the full library throughout the school year.

Equipment malfunction was another limitation on the use of the service. While the unit was being repaired, no one could use the titles on hand or record new titles. Some sites had cooperative arrangements to record for one another when necessary. Another site, which had duplication equipment, offered to make copies for any other site which had missed a broadcast.

Still another limitation on use of the service was the time allocated for MDS programming. During the first semester, additional satellite time, subject to preemption on 24-hour notice, was allocated by NASA for MDS programs. This extra time and the preemption situation led to an imbalance in the amount of programming received by the two "footprints" and created user complaints. Therefore, during the second semester, when extra time became available on short notice for MDS programming, the satellite system was used to notify the sites.

A final limitation was copyright restrictions. The copyright negotiations for continued use of MDS holdings after the end of the STD were viewed with mixed feelings by the sites. Some allocated funds to cover the royalty costs for their entire library. Some selected titles they wished to retain, hoping to cut the costs. Others developed sharing relationships with neighboring schools to reduce the cost. A few sites ceased recording MDS broadcasts.

The STD's demonstrated ability to provide excellent and timely supplementary materials (MDS) to support classroom instruction in all content areas was termed a success. Many teachers wanted MDS to continue and to be expanded.

RECOMMENDATIONS

1. Request forms. Simple request forms would insure better cooperation from the teachers. Also, simple forms might encourage teachers to return order forms at a much faster rate than the rate at which forms were returned in the STD.
2. Use of computer tabulation. In conjunction with simplifying request forms, precoded data cards could list much of the information previously requested on the forms. Computer printouts could provide tabulations of priorities and subject matter and grade level information.
3. Extra satellite time. All sites should be allocated an equal and sufficient amount of time for MDS. If sites cannot rely on MDS schedules, because of preemptions, they are faced with the same frustrations incurred with current library services.
4. Remote control. Future planners should investigate activating and stopping video-tape equipment in schools via satellite, as well as using nighttime remote turn-on and turn-off, which would enable school personnel and equipment to be used during the day (prime time) for utilization, not reception.
5. Copyrights. Copyright information should be understood by the distributor (in this case, the STD) and by the user (schools) well in advance of asking the schools to commit resources to a program they may have to pay for later or may have to destroy. Prior agreements, formal in nature, are a must in a future MDS-type effort.

SUMMARY

The Materials Distribution Service was mandated, researched, planned, developed, and implemented in less than one year. It clearly demonstrated that mass distribution of materials on an individualized, personalized, basis is a viable potential for satellite-delivery systems.

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